Section 15105

COMBINATION FLOW CONTROL VALVES

PART 1 GENERAL

1.01 SUMMARY

This Section includes the furnishing and installation of Combination Flow Control Valve (CFCV) including features such as Pressure Sustaining, Solenoid Shutoff, and Pressure Relief for Plant Work.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices

1. Payment for combination flow control valves is on unit price basis for each valve installed.

2. Payment includes piping, fittings, and appurtenances necessary for complete installation of valve.

3. Refer to Section 01270 – "Measurement and Payment" for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is a Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.03 REFERENCES

This specification references the following publications in their current editions. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

A. ASME B16.42: Ductile Iron Pipe Flanges and Flanged Fittings Classes 150 and 300

B. ASTM A536: Standard Specification for Ductile Iron Castings

C. AWWA C116/A21.16: Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings

1.04 SUBMITTALS

Submit the following in accordance with Sections 01330 – "Submittal Procedures" and 01782 – "Operations and Maintenance Data."

A. Submit manufacturer's product data for proposed valves for approval.

B. Provide Operations & Maintenance (O&M) Manual including, but not limited to, operating theory, operating schematic, data, settings, drawings, replacement part list, special maintenance and adjustment instructions, and expanded or detailed drawings with parts descriptions, numbers, and material specifications.

C. Submit design calculations and Shop Drawings for valve sealed by Engineer registered in the State of Texas.

D. Furnish certification that each valve has been hydrostatically tested at 200 percent of rating.

1.05 RELATED REQUIREMENTS

A. Section 01270 – “Measurement and Payment”

B. Section 01330 – “Submittal Procedures”

C. Section 01782 – “Operations and Maintenance Data”

D. Section 02317 – “Excavation and Backfill.”

E. Section 02514 – “Disinfection of Water Lines”

F. Section 02515 – “Hydrostatic Testing of Pipelines”

G. Section 13346 - " Primary Instrument Devices"

H. Section 15150 – “Basket Strainer”

I. Section 15959 – “Automatic Control Valve Insulated Enclosure (Hot Box)”

J. Section 16473 - "Water Receiving Facilities (WRF) Programmable Logic Controllers (PLC), SCADA Interface Panels and Panel Mounted Equipment"

K. Attachment(s) to this Section designate quantity, size, acceptable manufacturers, and special features.

L. Other related Work as called for on Plans or specified elsewhere in other Sections.

1.06 QUALITY ASSURANCE

A. All valves with associated appurtenances shall be furnished as a complete unit by the valve manufacturer.

B. Submit manufacturer's affidavit that combination flow control valves purchased for Work were manufactured and tested in the United States, and conform to the requirements of this Section.

1.07 SYSTEM DESCRIPTION (NOT USED)

1.08 DELIVERY, STORAGE, AND HANDLING

Ship with flange protectors and store to prevent any damage prior to installation. Any damage occurring prior to the installation is to be replaced by the Contractor with no additional cost to the Owner.

1.09 – 1.12 (NOT USED)

1.13 WARRANTY

Provide Authority with manufacturer's warranty guaranteeing the flow control valves and associated equipment to be free from defects in workmanship and materials, under normal use and service, for three (3) years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURER(S)

A. CLA-VAL

B. Or Approved Equal

2.02 MATERIALS AND/OR EQUIPMENT

Provide a Combination Flow Control Valve hydraulically operated by a pilot system with appurtenances to provide pressure sustaining capability, pressure relief override, and flow control with dual solenoid control and controller.

A. Manufacturer/Model:

CLA-VAL Model 131KO-CE (or manufacturer’s current equivalent model)

B. Basic Valve

1. Valve body:

Full port ASTM A536 ductile iron globe valve with ASME B16.42, Class 150, flanges

2. Valve cover: ASTM A536 ductile iron

3. Valve internals:

a. Provide top and bottom single moving disc and diaphragm assembly.

b. Use flexible nylon fabric reinforced Buna-N rubber diaphragm integral with assembly.

c. Provide valve internal trim (seat ring, disc guide, and cover bearing) made of stainless steel.

d. Provide fusion bonded epoxy coating, AWWA C116/A21.16, to internal and external surfaces of valve body including disc retainer and diaphragm washer. Holiday test coating applied to valve body.

e. Stem, nut, and spring made of stainless steel

f. Do not use leather parts

g. Provide 316 Stainless Steel anti-cavitation trim

C. Control Tubing:

Contain shutoff cocks, check valves, and Y-strainer.

D. Flow Control:

1. Include flow control valves to control main pilot flow rate into and out of main valve cover chamber.

2. Provide Cla-Val CDHS-33 Electronic Actuated Rate of Flow Pilot Control or Approved Equal.

E. Valve Position Indicator:

1. Manufacturer shall equip valve with visual valve position indicator capable of transmitting a signal indicating valve position.

2. Provide Cla-Val X117D Valve Position Transmitter or Approved Equal.

3. Fit valve position indicator with air bleed petcock.

4. Initially set in field by authorized manufacturer's representative.

5. Valve position indicator shall meet the minimum standards listed in Section 13346 - "Primary Instrument Devices."

6. Valve position indicator is to be able to transmit a position signal to the SCADA System. For more information on the interface between the valve position indicator and the SCADA system see Section 16473 - "Water Receiving Facilities (WRF) Programmable Logic Controllers (PLC), SCADA Interface Panels and Panel Mounted Equipment."

F. Strainer:

Provide a basket strainer upstream of Combination Flow Control Valve as shown on Plans and conforming to requirements of 15150 – “Basket Strainer.”

G. Solenoid Valves:

1. Manufacturer shall provide two solenoid valves to allow valve to adjust flow rate through valve and lock valve in position.

2. Solenoid valves are to meet the minimum standards listed in Section 13346 - "Primary Instrument Devices."

3. Solenoid valves shall be operated by 120 Volts (ac), 24 Volts (ac) or 24 Volts (dc) digital signals. See "ATTACHMENT" for type of digital signals used to operate valves.

4. Solenoid valves are to be able to be operated remotely to open, close, or lock in position between open and closed positions. For more information on the interface between the solenoid valves and the SCADA system see Section 16473 - "Water Receiving Facilities (WRF) Programmable Logic Controllers (PLC), SCADA Interface Panels and Panel Mounted Equipment." Operational conditions are as follows:

a. Upstream Valve:

Contact set in “NORMALLY OPEN” position. De-energize solenoid valve to “Open” and energize solenoid valve to “Close.”

b. Downstream Valve:

Contact set in “NORMALLY CLOSED” position. De-energize solenoid valve to “Close” and energize solenoid valve to “Open.”

H. Pressure Reducing Control Valve:

To perform pressure sustaining capability - If main valve inlet pressure is less than a set value, the pressure reducing control valve opens to start closing main valve.

I. Pressure Relief Control Valve:

To perform pressure relief capability - If main valve inlet pressure is above a set value, the pressure relief control valve opens to start to open main valve.

J. Electronic Valve Controller:

Provide a CLA-VAL Model VC-22D Electronic Valve Controller.

K. Install system components according to manufacturer's recommendations unless otherwise approved by Engineer.

L. Valve Enclosure: Provide as shown on Plans and conforming to requirements of 15959 – “Automatic Control Valve Insulated Enclosure (Hot Box).”

2.03 – 2.04 (NOT USED)

PART 3 EXECUTION

3.01 EARTHWORK

Conform to applicable provisions of Section 02317 – "Excavation and Backfill."

3.02 SETTING VALVES

A. Provide services of technical representative of valve manufacturer on site during installation of valves and to serve as adviser on aspects of installation. Take necessary precautions to protect pilot system during Combination Flow Control Valve installation.

B. Prior to installing valves, remove foreign matter from within valves. Inspect valves in open and closed position to verify that parts are in satisfactory working condition.

3.03 DISINFECTION AND TESTING

Disinfect valves and appurtenances as required by Section 02514 – "Disinfection of Water Lines" and test as required by Section 02515 – "Hydrostatic Testing of Pipelines."

3.04 PAINTING OF PIPING AND VALVES

Paint piping and valves located in vaults, stations, and above ground using ACRO Paint No. 2215, or approved equal.

ATTACHMENT

[Design Engineer is to complete blanks per site requirements]

1.	Combination Flow Control Valve Manufacturer:	CLA-VAL
2.	Combination Flow Control Valve Model:	Model 131KO-CE
3.	Electronic Valve Controller Manufacturer:	CLA-VAL
4.	Combination Valve Controller Model:	Model VC-22D
5.	Valve Position Transmitter Manufacturer:	CLA-VAL
6.	Valve Position Transmitter Model:	X117D22D
7.	Electronic Actuated Rate of Flow Pilot Manufacturer:	CLA-VAL
8.	Electronic Actuated Rate of Flow Pilot Model:	CDHS-33
9.	Valve Size:	_____
10.	Type of Operational Digital Signal:	120 Volts (ac), 24 Volts (ac) or 24 Volts (dc)
11.	Minimum Flow (gpm):	_____
12.	Maximum Flow (gpm):	_____
13.	Minimum Pressure (psi):	_____
14.	Maximum Pressure (psi):	_____

END OF SECTION